

I claim:

1. A method of chemical compound storage, comprising:

- (a) providing a longitudinally extending carrier tape having thermally formed therein a plurality of chemical receiving wells; and
- (b) adding to each of said chemical receiving wells a chemical compound.

2. A method of chemical compound storage, as defined in Claim 1, further

comprising: placing a liquid tight sealing material over said chemical receiving wells to retain said chemical compounds therein and to minimize evaporation.

3. A method of chemical compound storage, as defined in Claim 2, further

comprising: forming said carrier tape into a compact roll for storage.

4. A method of chemical compound storage, as defined in Claim 1, further

comprising: providing said carrier tape of a thermoformable material having a thickness on the order of from about 15 mils to about 20 mils.

5. A method of chemical compound storage, as defined in Claim 1, further

comprising: providing said carrier tape formed of polypropylene to provide solvent resistance.

SECRET - BT036760

6. A method of chemical compound storage, as defined in Claim 1, further comprising: providing said carrier tape formed of clear polycarbonate or polystyrene to facilitate optical reading of contents within said chemical receiving wells.

5

7. A method of chemical compound storage, as defined in Claim 1, further comprising: providing said chemical receiving wells in repetitive matrixes selected from the group consisting of 8x12 wells with a spacing of 9mm between centers, 16x24 wells with a spacing of 4.5mm between centers, and 32x48 wells with a spacing of 2.25mm between centers.

10

SUB
SCH

8. A method of chemical compound storage, as defined in Claim 7, further comprising: providing each of said repetitive matrixes with a unique identifier.

15

9. A method of chemical compound storage, as defined in Claim 2, further comprising: providing said sealing material with a pressure sensitive adhesive to adhere said sealing material to said carrier tape such as to permit removal of said sealing material after adhesion to said carrier tape.

20

SUB
SCH

10. A method of chemical compound storage, as defined in Claim 2, further comprising: providing said sealing material heat sealed to said carrier tape such as to permit removal of said sealing material after being sealed to said

Sub
B57

carrier tape.

09198018-112398

11. A method of chemical compound storage, as defined in Claim 10, further comprising providing said seal material as a two layer material having:
- (a) a lower, seal layer of a low melting point material inert to the contents of said chemical receiving wells; and
 - (b) an upper high melting point layer having a higher tensile strength than said seal layer and being joined to said seal layer, to assist in removing said sealing material from said carrier tape.
12. A method of chemical compound storage, as defined in Claim 11, further comprising: providing said seal layer formed of a material selected from the group consisting of modified low density polyethylene and ethyl vinyl acetate.
13. A method of chemical compound storage, as defined in Claim 11, further comprising: providing said upper layer formed from polyester.
14. A method of chemical compound storage, as defined in Claim 2, further comprising: removing said sealing material from said carrier tape by using a heated roll to warm said sealing material for removal.
15. A method of chemical compound storage, as defined in Claim 2, further comprising: perforating said carrier tape with small holes between said chemical receiving wells to evacuate space between said seal material and

SECRET - 112393

said carrier tape at time of sealing to assure an intimate leak tight seal is achieved between said seal material and said carrier tape.

Sub
AD1

5

16. A method of chemical compound storage, as defined in Claim 2, further comprising: die cutting said sealing material around a pattern of said chemical receiving wells to allow manual removal of said sealing material from said carrier tape.

09198018-112398

10

Sub
SC107

17. A method of chemical compound storage, as defined in Claim 3, further comprising: spinning said roll to force contents of said chemical receiving wells to bottoms of said chemical receiving wells by centrifugal force.

15

Sub
SC117

18. A method of chemical compound storage, as defined in Claim 1, further comprising: severing individual patterns of said chemical receiving wells from said carrier tape so that said individual patterns can be used independently.

19. A method of performing biological assays, comprising:

- (a) providing a longitudinally extending carrier tape having thermally formed therein a plurality of reagent receiving wells;
- (b) adding a reagent to each of said reagent receiving wells;
- (c) permitting each of said reagent receiving wells to incubate at a predetermined temperature for a predetermined time; and

20

(d) performing a biological analysis on each of said reagent receiving wells.

20. A method of performing biological assays, as defined in Claim 19, further comprising: placing a liquid tight sealing material over said reagent receiving wells to retain said chemical compounds therein and to minimize evaporation.

10 *Sub B6* 21. A device for chemical compound storage, comprising: a longitudinally extending carrier tape having thermally formed therein a plurality of chemical receiving wells.

15 *Sub C13* 22. A device for chemical compound storage, as defined in Claim 21, further comprising: a liquid tight sealing material disposed over said chemical receiving wells to retain said chemical compounds therein and to minimize evaporation.

23. A device for chemical compound storage, as defined in Claim 22, wherein: said carrier tape is formable into a compact roll for storage.

20 24. A device for performing biological assays, comprising: a carrier tape having thermally formed therein a plurality of reagent receiving wells.

25. A device for performing biological assays, as defined in Claim 24, further

86627-8T086F60

comprising: a liquid tight sealing material disposed over said reagent receiving wells to retain said chemical compounds therein and to minimize evaporation.

5

26. A liquid aspirating/dispensing device, comprising:

- (a) a plurality of cylindrical passageways; and
- (b) a single piezoelectric crystal to simultaneously compress said cylindrical passageways to aspirate or dispense liquid by positive displacement within said passageways.

10

27. A liquid aspirating/dispensing device, as defined in Claim 26, further comprising:

- (a) a single fast acting solenoid valve connected to first ends of said cylindrical passageways; and
- (b) a plurality of small diameter orifices connected to a second ends of said cylindrical passageways.

15

28. A liquid aspirating/dispensing device, as defined in Claim 27, wherein: said fast-acting solenoid valve is connected to a three-way valve to selectively connect one of compressed gas, a vacuum source, and a pressurized liquid container to said solenoid valve.

20

29. A liquid aspirating/dispensing device, as defined in Claim 27, wherein: said

small diameter orifice comprises a thin walled tube with a small inner diameter, said thin walled tube being encased in a larger tube for mechanical support.

add
a31

SECRET - 112398